Docket No.: 11345/030001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Francois Rey et al.

Patent No.: 8,359,626

Issued: January 22, 2013

For: APPLICATION DATA TABLE FOR A MULTISERVICE DIGITAL TRANSMISSION SYSTEM

REQUEST FOR CERTIFICATE OF CORRECTION
PURSUANT TO 37 C.F.R. § 1.322

Attention: Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Madam:

Upon reviewing the above-identified patent, Patentee noted a typographical error which should be corrected.

In the Claims:

At column 18, claim 1, line 40-41, the phrase "carried by one or more of the plurality of, comprising" should read -- carried by one or more of the plurality of **services, said method** comprising --.

The error was not in the application as filed by applicant; accordingly no fee is required.

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentee respectfully solicits the granting of the requested Certificate of Correction.

Applicant believes no fee is due with this request. However, if a fee is due, please charge our Deposit Account No. 50-0591, under Order No. 11345/030001.

Dated: March 18, 2013

Respectfully submitted,

By Seema Mehta
for Jonathan P. Osha 56,235
Registration No.: 33,986
OSHA · LIANG LLP
909 Fannin Street, Suite 3500
Houston, Texas 77010
(713) 228-8600
(713) 228-8778 (Fax)

As will be appreciated, many types of information may be included and the factors in above list are not intended to be exhaustive and/or obligatory.

Other information in the application description part may include information needed to locate modules of an application contained within a further level of structure in the TID tables of sections of the service. For example, in addition to being packetised in tables and sections for transmission, an application may itself be organised in a data carousel, for example, conforming to the DSMCC data format. The information contained in the ADT can include a path description or carousel address to enable the decoder to go to a specific entry point to download an application.

Finally, the ADT table **110** includes a signature **114** comprising an electronic signature of the data in the ADT table **110** and which enables the decoder to verify the origin and integrity of the data in the table.

This may be created by the operator responsible for the bouquet, for example, using a combination of a hash algorithm (such as MD5) to obtain a hash value corresponding to the data in the table, this hash value then being encrypted by a private key of a public/private algorithm (such as RSA). Verification of the ADT table may be carried out by a decoder possessing the same hash algorithm and supplied with the corresponding public key. The use of a combination of hash and private/public key algorithms to verify communicated data is known and will not be described here in any further detail.

Alternatively or in addition, the ADT table may even be encrypted by a symmetric algorithm. However, as will be understood, use of an electronic signature at this level is optional and, in practice, verification may be carried out at a lower level, for example, on the application data itself.

As described above, the ADT table for a given bouquet will have a predetermined PID and TID extension value and this table will be loaded and verified immediately upon start up of the decoder, regardless of which service channel (if any) the decoder is tuned to. Once supplied with the information in this table, the application manager can then make reasoned choices regarding maintenance or non-maintenance of applications when tuned to or changing between services and without having to wait the downloading of a PMT table.

In particular, upon selection of a service or upon changing services the application manager may take into account information contained in the application_flag, application_exclusive, application_priority and application_memory fields in evaluating which applications to download, which applications to maintain, which applications must be deleted etc.

In the case of a decoder tuned firstly to the service channel PMT**1** shown in FIG. 7, the application manager will identify the applications **A1**, **A3** contained within this service channel as being present and valid, that is as applications corresponding to applications listed in the service section **112** of the ADT table of the bouquet. Using the ADT table data for these applications, the application manager then carries out a determination as to whether or not to download the applications and, assuming all conditions are met (sufficient memory etc.) will download applications **A1**, **A3** etc.

If the user now changes to the service channel PMT**2**, the application manager will identify the applications **A1**, **A2**, **A4** as being present and valid in this channel.

In the case of the application A1, the application manager will be aware that this application is already downloaded and present in the decoder in its latest version and will normally not carry out any action, leaving A1 running "as is" in the decoder. In the case of the applications **A2**, **A4** the applicatiou manager may, for example, evaluate the values application_priority, application_memory etc. of these applications and compare these values with the corresponding values of the application **A3** previously downloaded and currently running in the decoder. The evaluation may also be carried out using the value application_flag of the currently running application (see above).

Even though the application **A3** is not present and not required for all access to the possibilities provided by the service channel accessed via PMT**2**, the application manager may nevertheless decide in dependence on the value application_flag to continue to run the application **A3** in preference to, or as well as, downloading one or the other of the applications **A2**, **A4**. If the user then changes back to PMT**1**, the application **A3** is thus immediately available.

Many other alternatives are possible. For example, the application manager may be configured to kill the application **A1** (for example if **A1** includes an application_exclusive flag associated with PMT**1**); to maintain **A3** for a limited period of time before killing **A3** and downloading **A2**, **A4**; to maintain **A3** until the user presses a key on the remote control and thereafter kill **A3** and download one of the applications **A2**, **A4** etc.

As will be understood, the use of an ADT table containing data over all services in a bouquet enables the application manager of the decoder to carry out an unusually sophisticated evaluation regarding the maintenance or non-maintenance of applications carried in a plurality of service streams.

In the above example, the ADT table has been described as being downloaded from the broadcast transport stream. In practice, the ADT table, or at least a start up version of the ADT table, may be loaded into the decoder at the moment of manufacture of the decoder, so as to enable the decoder to automatically load certain applications carried in some or all services in a bouquet. Alternatively, the decoder may download a version of the ADT table via its modem connection, via the smart card interface, via the serial port etc.

The invention claimed is:

1. A method of transmission of application data in a plurality of services carried in a digital transport stream, each application being carried by one or more of the plurality of, comprising:

providing a single application data table containing information regarding each application carried by one or more of plurality of services,

wherein the at least one application is an executable application configured to execute on a decoder, and

wherein the single application data table comprises a list of applications carried by each of the plurality of services, and indicates whether a given application is carried by more than one service,

wherein the decoder is configured to execute a first set of one or more applications that are carried by a first service after downloading the first set of one or more applications, and

wherein, upon receiving from the user an instruction to change from the first service to a second service, the decoder is configured to determine which of the first set of applications is also carried by the second service, wherein the determination is made based on the information in the application data table without obtaining a PMT table for the second service; and

wherein, upon determining that at least one or more of the first set of applications is also carried by the second service, the decoder is configured to maintain or delete the one or more applications of the first set of applications that are also carried by the second service during the service change.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Seema Metha on July 26, 2012.

3. The application has been amended as follows:

- In the claims, cancel claims 68 and 81.
- Replace claim 48 with the following:

--A method of transmission of application data in a plurality of services carried in a digital transport stream, each application being carried by one or more of the plurality of, comprising:

providing a single application data table containing information regarding each application carried by one or more of plurality of services,

wherein the at least one application is an executable application configured to execute on a decoder, and

wherein the single application data table comprises a list of applications carried by each of the plurality of services, and indicates whether a given application is carried by more than one service,

wherein the decoder is configured to execute a first set of one or more applications that are carried by a first service after downloading the first set of one or more applications, and

wherein, upon receiving from the user an instruction to change from the first service to a second service, the decoder is configured to determine which of the first set of applications is also carried by the second service, wherein the determination is made based on the information in the application data table without obtaining a PMT table for the second service; and

wherein, upon determining that at least one or more of the first set of applications is also carried by the second service, the decoder is configured to maintain or delete the one or more applications of the first set of applications that are also carried by the second service during the service change.--

- Replace 56 with the following:

--A transmission apparatus comprising:

a transmitter for transmitting a transport stream comprising a plurality of digital television services, wherein each of the plurality of services carries at least one application, together with a single application data table comprising information regarding said at least one application carried by each of a plurality of the services within the transport stream,

wherein the at least one application comprises an executable application configured to be executed on a decoder,

wherein the single application data table further comprises a list of applications carried by each of the plurality of services and indicates whether a given application is carried by more than one service,

wherein the decoder is configured to execute a first set of one or more applications that are carried by a first service after downloading the first set of one or more applications, and

wherein, upon receiving from the user an instruction to change from the first service to a second service, the decoder is configured to determine which of the first set of applications is also carried by the second service, wherein the determination is made based on the information in the application data table without obtaining a PMT table for the second service; and

wherein, upon determining that at least one or more of the first set of applications is also carried by the second service, the decoder is configured to maintain or delete the one or more applications of the first set of applications that are also carried by the second service during the service change.--

- Replace claim 63 with the following:

--A decoder, comprising:

a memory for storing an application data table comprising information regarding applications carried by a plurality of services within a digital transport stream, wherein each of the plurality of services carries at least one application,

wherein the at least one application comprises an application executable by the decoder,

wherein the application data table further comprises a list of applications carried by each of the plurality of services and is configured to indicate whether a given application is carried by more than one service,

the decoder being configured to:

execute a first set of one or more applications that are carried by a first service after downloading the first set of one or more applications;

upon receiving from the user an instruction to change from the first service to a second service, determine which of the first set of applications is also carried by the second service, wherein the determination is made based on the information in the application data table without obtaining a PMT table for the second service; and

upon determining that at least one or more of the first set of applications is also carried by the second service, maintain or delete the one or more applications of the first set of applications that are also carried by the second service during the service change.--

- Replace claim 77 with the following:

--A method of reception by a decoder of applications carried in a plurality of services, each application being carried by one or more of the plurality of services, wherein the said plurality of services is transmitted in a digital transport stream, said method comprising the steps of:

receiving an application data table containing information regarding said applications carried by said plurality of services,

wherein each application is an executable application configured to execute on said decoder, and

wherein said application data table comprises a list of all applications carried by each of the plurality of services and indicates whether a given application is carried by more than one service;

executing on the decoder, a first set of one or more applications that are carried by a first service after downloading the first set of one or more applications;

upon receiving from the user an instruction to change from the first service to a second service, determining which of the first set of applications is also carried by the second service, wherein the determination is made based on the information in the application data table without obtaining a PMT table for the second service; and

upon determining that at least one or more of the first set of applications is also carried by the second service, maintaining or deleting the one or more applications of the first set of applications that are also carried by the second service during the service change.--

- In each of claims 79, 80, 82, and 82, replace "The method as claimed in claim 77" with --The method as claimed in claim 78--
- Add new claim 84 as follows:

--The method as claimed in claim 77, wherein one or more of the first set of applications is deleted when the one or more applications includes a parameter exclusive to the first service in the application data table.--

- Add new claim 85 as follows:

--The method as claimed in claim 77, further comprising deleting the one or more of the first set of applications after a predetermined period of time, upon determining that the one or more of the first set of application is not carried by the second service.--

Reasons for Allowance

4. The following is an examiner's statement of reasons for allowance:

The independent claims recite, inter alia, one or more executing a first set of applications that are carried by a first service, wherein upon receiving a user instruction to change to a second service, determining whether any of the first set of applications are also carried by the second service, wherein this determination is made based on information contained in the application data table without obtaining the PMT (program map table) for the second service and performing the maintenance or deletion of the applications in the first set of applications that are also deemed to be carried by the second service. The prior art of record alone or in combination does not teach the recited limitations, one of ordinary skill in the art at the time of the invention could have not arrived at the recited claim language without improper hindsight.

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1.- 47. (Canceled)

48. (Currently Amended) A method of transmission of application data in a plurality of services carried in a digital transport stream, each of said plurality of services carrying at least one application, comprising:

providing a single application data table containing information regarding each of said at least one application carried by each service among said [[of a]] plurality of [[the]] services ~~within the transport stream,~~

wherein the at least one application is an executable ~~interactive~~ application configured to execute on a decoder, and

wherein the single application data table comprises~~:~~

~~a service description part comprising~~ a list of applications carried by each of the plurality of services, and indicates whether a given application is carried by more than one service ~~an application description part comprising a mapping of an application identifier uniquely identifying the at least one application to characteristics of the at least one application,~~

~~wherein the characteristics are evaluated when a user switches from a first service comprising a first application and a second application to a second service comprising the first application and a third application, wherein the evaluation of the characteristics of the first, second, and third applications determines whether to maintain, delete, or download one or more of the first, second, and third applications~~.

49. (Currently Amended) The method as claimed in claim 48, wherein the single application data table is transported in a transport packet having a predetermined packet ID value associated with the presence of an application data table within the packet.

50. (Previously Presented) The method as claimed in claim 48, wherein said single application data table is electronically signed so as to permit a decoder to verify the single application data table as originating from a known operator.

51. (Currently Amended) The method as claimed in claim 48, wherein the digital transport stream comprises, for each of the plurality of services, ~~further comprises~~ a program map table ~~giving~~ providing a point of access to said at least one application[[s]] carried by this service~~, the program map table itself comprising information regarding said at least one application carried by this service~~.

52. (Previously Presented) The method as claimed in claim 48, further comprising:

providing a plurality of said application data tables, each application data table containing information regarding applications contained within a bouquet of services.

53. – 54. (Canceled)

55. (Previously Presented) The method as claimed in claim 48, wherein the digital transport stream conforms to the MPEG standard.

56. (Currently Amended) A transmission apparatus comprising:

a transmitter ~~of a digital broadcast system~~ for transmitting a transport stream comprising a plurality of digital television services, wherein each of the plurality of services carries at least one application, together with a single application data table comprising information regarding said at least one application carried by each of a plurality of the services within the transport stream,

wherein the at least one application comprises an executable ~~interactive~~ application configured to be executed on a decoder, and

wherein the single application data table further comprises~~:~~

~~a service description part comprising~~ a list of applications carried by each of the plurality of services and indicates whether a given application is carried by more than one service~~, and~~

~~an application description part comprising a mapping of an application identifier uniquely identifying the at least one application to characteristics of the at least one application,~~

~~wherein the characteristics are evaluated when a user switches from a first service comprising a first application and a second application to a second service comprising the first application and a third application, wherein the evaluation of the characteristics of the first, second, and third applications determines whether to maintain, delete, or download one or more of the first, second, and third applications.~~

57. – 58. (Canceled)

59. (Currently Amended) The transmission apparatus as claimed in claim 56, wherein the transmitter is adapted to transmit, for each of the plurality of services, a program map table ~~giving~~ providing a point of access to ~~applications carried by that service, the program map table itself comprising information regarding~~ said at least one application carried by this service.

60. (Previously Presented) The transmission apparatus as claimed in claim 56, wherein the transmitter is adapted to transmit a plurality of said application data tables, each application data table containing information regarding applications contained within a bouquet of services.

61. (Canceled)

62. (Previously Presented) A transmission apparatus as claimed in claim 56, wherein the digital transport stream conforms to the MPEG standard.

63. (Currently Amended) A decoder comprising:

a memory for storing an ~~single~~ application data table comprising information regarding applications carried by a plurality of services within [[the]] a digital transport stream, wherein each of the plurality of services carries at least one application,

wherein the at least one application comprises an ~~executable interactive~~ application executable[[ed]] by the decoder,

wherein the ~~single~~ application data table further comprises:

~~a service description part comprising a~~ list of applications carried by each of the plurality of services and is configured to indicate whether a given application is carried by more than one service~~, and~~

~~an application description part comprising a mapping of an application identifier uniquely identifying the at least one application to characteristics of the at least one application,~~

~~wherein the characteristics are evaluated when a user switches from a first service comprising a first application and a second application to a second service comprising the first application and a third application, wherein the evaluation of the characteristics of the first, second, and third applications determines whether to maintain, delete, or download one or more of the first, second, and third applications; and~~

~~means for controlling, when changing between the plurality of services, the downloading, deleting, and maintenance of the first, second, and third applications in dependence on the characteristics of each of the first, second, and third applications information contained within the single application data table~~.

64. (Canceled)

65. (New) The method as claimed in claim 48, wherein said application data table further comprises information linking each application carried by said plurality of services to parameters describing said application.

66. (New) The method as claimed in claim 65, wherein said parameters comprise an application identifier uniquely identifying said each application within the plurality of services.

67. (New) The method as claimed in claim 65, wherein said parameters comprise information defining whether an application is to be maintained or not when changing services.

68. (New) The method as claimed in claim 65, further comprising:

detecting a command of change from a present service to a second service;

based on the information in the application data table, determining whether a given application is carried by the present service and the second service; and

deciding whether or not to maintain said given application based on said determination.

69. (New) The method as claimed in claim 65, wherein said parameters comprise a priority of an application for accessing resources of the decoder compared to other applications.

70. (New) The method as claimed in claim 65, wherein said parameters comprise a priority of an application for downloading by the decoder.

71. (New) The decoder as claimed in claim 63, wherein said application data table further comprises information linking each application carried by said plurality of services to parameters describing each said application.

72. (New) The decoder as claimed in claim 71, wherein said parameters comprise an application identifier uniquely identifying said each application within the plurality of services.

73. (New) The decoder as claimed in claim 71, wherein said parameters comprise information defining whether an application is to be maintained or not when changing services.

74. (New) The decoder as claimed in claim 71, wherein said parameters comprise information indicating whether an application is exclusive to a service.

75. (New) The decoder as claimed in claim 71, wherein said parameters comprise a priority of an application for accessing resources of the decoder compared to other applications.

76. (New) The decoder as claimed in claim 71, wherein said parameters comprise a priority of an application for downloading by the decoder.

77. (New) A method of reception by a decoder of applications carried in a plurality of services each of which carries at least one application, wherein the said plurality of services is transmitted in a digital transport stream, said method comprising the steps of:

receiving an application data table containing information regarding said applications carried by said plurality of services,

wherein each application is an executable application configured to execute on said decoder, and

wherein said application data table comprises a list of all applications carried by each of the plurality of services and indicates whether a given application is carried by more than one service.

78. (New) The method as claimed in claim 77, wherein said application data table further comprises information linking each application carried by said plurality of services to parameters describing each said application.

79. (New) The method as claimed in claim 77, wherein said parameters comprise an application identifier uniquely identifying said each application within the plurality of services.

80. (New) The method as claimed in claim 77, wherein said parameters comprise information defining whether an application is to be maintained or not when changing services.

81. (New) The method as claimed in claim 77, wherein said decoder comprises a control unit for deciding, based on information in the application data table, whether or not to maintain an application when switching from a present service to a second service.

82. (New) The method as claimed in claim 77, wherein said parameters comprise a priority of an application for accessing resources of the decoder compared to other applications.

83. (New) The method as claimed in claim 77, wherein said parameters comprise a priority of an application for downloading by the decoder.

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.	:	8,359,626
APPLICATION NO.	:	09/786,778
ISSUE DATE	:	January 22, 2013
INVENTOR(S)	:	Francois Rey et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims:

At column 18, claim 1, line 40-41, the phrase "carried by one or more of the plurality of, comprising" should read -- carried by one or more of the plurality of services, said method comprising --.

MAILING ADDRESS OF SENDER (Please do not use customer number below):
Jonathan P. Osha
OSHA · LIANG LLP
909 Fannin Street, Suite 3500
Houston, Texas 77010